



US Army Corps
of Engineers®

SAN FRANCISCO DISTRICT

PUBLIC NOTICE

Regulatory Branch
333 Market Street
San Francisco, CA 94105-2197

NUMBER: 29043N DATE: October 27, 2004
RESPONSE REQUIRED BY: November 26, 2004

PERMIT MANAGER: David Ammerman

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1. **INTRODUCTION:** Independent Natural Resources Inc., 7466 Washington Avenue South, Eden Prairie, Minnesota 55344, through its agent, Christopher K. H. Guay, Ph.D. (Contact: C. Guay at 510-486-5245) has applied for a U.S. Army, Corps of Engineers (Corps) permit to place and install in navigable waters of the United States (Pacific Ocean), a wave energy pump unit (also known as the SEADOG) in a temporary, pilot program to test the feasibility of pump operation in sea conditions. The pump would be tested as part of a larger program to develop non-fossil renewable energy sources from wave action. This application is being processed pursuant to the provisions of Section 404 of the Clean Water Act (33 U.S.C. Section 1344) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. Section 403).

2. PROPOSED PROJECT:

Project Site: The project will be located in ocean waters approximately one mile offshore from Table Bluff and the California coastline (Latitude 40 degrees, 41.7 minutes North and Longitude 124 degrees and 18.0 minutes West) in Humboldt County. There will be no onshore facilities associated with this pilot project, no pipelines or structures on land (other than the use of dock access for assembly of the

pump prior to towing it out to sea). The applicant would be only testing the pump device at sea.

Project Description: As shown in the attached drawings (sheets 1 and 2 of 2), the applicant plans to install a wave energy conversion pump device in the ocean waters about one mile off of Table Bluff, a point of land south of the South Spit and the Humboldt Bay entrance channel jetties. The device would rest on the flat, sandy bottom. The pump would be anchored on the ocean floor with a two-foot high concrete block with dimensions of approximately 43 feet by 43 feet or 1,849 square feet. The total height of the structure above the ocean floor would be 130 feet, of which 65 feet of the structure would be extended above the water line of the ocean. Part of the structure contains a buoyancy block about 17.5 feet in diameter and five feet high, which would be free to move vertically with the crests and troughs of the waves as they pass by the pump structure. The vertical motion of the buoyancy block will drive a piston seated in a vertical shaft drawing in ambient seawater through an inlet valve on the intake stroke and pumping through an outlet valve on the exhaust stroke. The inlet and outlet valves (approximately 20 inches in diameter) would be equipped with NOAA-approved screening material to

minimize entrapment or entrainment of marine organisms. The applicant states that the device is entirely mechanical and contains no oils, fluids, lubricants or other hazardous materials. There would be no emissions or discharge associated with the operation of the pump.

If the system was set up for power generation, the pump's exhaust stream would be directed through a pipeline running to an onshore reservoir situated at the top of the adjacent bluffs. Water would be released from the reservoir to drive a turbine before flowing back out to sea through a return pipeline. However, the purpose of the SEADOG pilot project is solely to conduct research on the prototype pump device and collect data on its performance under real-life conditions at sea. Therefore, for this pilot project there will not be any pipelines or onshore facilities constructed.

The concrete base for the SEADOG pump unit will be constructed in a dry dock or similar industrial facility in Humboldt Bay.

It will have external ballast tanks so that it can be floated, towed, and eventually sunk to the seafloor at the deployment site.

Purpose and Need: The basic purpose of this project is to test the operation of the SEADOG pump in actual sea conditions. The overall purpose of this project is to test a pilot technology concept of operating a seawater pump with ocean wave energy, in prelude to possible development of large-scale wave energy devices that would provide energy to commercial, residential or industrial uses on land.

Impact: The project would result in the

placement of approximately 90 cubic yards (cy) of fill (concrete block anchor) into 1,849 square feet of Corps jurisdictional waters and installation of a 130-foot tall and 17.5 foot diameter structure in ocean waters.

Mitigation: The applicant proposes to install the SEADOG for a relatively short duration in ocean waters (6-12 months). There may be unavoidable impacts to benthic organisms (invertebrate or vertebrate species) and to pelagic fish, anadromous fish and possibly sea mammals (sea lions, seals, whales) during the installation and removal of the SEADOG. The applicant has not proposed any mitigation for the impacts, but the applicant expects that after removal of the SEADOG and its anchor from ocean waters, benthic organisms would naturally recolonize on the disturbed ocean bottom from adjacent undisturbed ocean floor and pelagic or other fish would return to the installation site from adjacent locations. It is possible that fish may utilize the installed SEADOG to hide from predators or predators may use the SEADOG to lay in wait for prey (similar to the much larger scale situation with off shore drilling platforms as artificial habitat for sea life or in the case of sunken vessels). The portion of the SEADOG exposed to the air may serve incidentally as a perch for sea birds, although during the pump's operation the birds may be scared off of the SEADOG. The inlet and outlet pump valves of the device would have NOAA-approved screening material to prevent entrapment or entrainment of marine organisms including fish into the pumps.

3. COMPLIANCE WITH VARIOUS FEDERAL LAWS:

National Environmental Policy Act of 1969 (NEPA): The Corps will assess the environmental impacts of the proposed action in accordance with the requirements of the National Environmental Policy Act of 1969 (42 U.S.C. Section 4371 et. seq.), the Council on Environmental Quality's Regulations, 40 C.F.R. Part 1500-1508, and Corps' Regulations, 33 C.F.R. Part 230 and 325, Appendix B. Unless otherwise stated, the Environmental Assessment will describe only the impacts (direct, indirect, and cumulative) resulting from activities within the Corps' jurisdiction.

Endangered Species Act of 1973 (ESA)(16 U.S.C. Section 1531 et seq.): Section 7 of the Endangered Species Act requires formal consultation with the U.S. Fish and Wildlife Service (FWS) and/or the National Marine Fisheries Service (NOAA Fisheries) if a Corps permitted project may adversely affect any Federally listed threatened or endangered species or its designated critical habitat. Species and critical habitat currently identified as potentially impacted by the proposed project include but are not limited to: coho salmon (*Oncorhynchus kisutch*), Chinook salmon (*O. tshawytscha*), steelhead (*O. mykiss*), and marbled murrelet (*Brachyramphus marmoratus*).

Magnuson-Stevens Fisheries Conservation and Management Act (16 U.S.C. Section 1801): NOAA Fisheries and several interagency fisheries councils have designated specific water bodies as Essential Fish Habitat (EFH) in accordance with the Magnuson-Stevens Fisheries Conservation and Management Act. Specific EFH concerns associated with this

proposal include Chinook salmon, coho salmon, and a variety of other estuarine and marine fish including some bottom fish and pelagic fish listed by the respective fishery councils. Coordination with the NOAA Fisheries in regard to EFH will be initiated concurrently with the ESA consultation, if necessary.

Marine Mammal Protection Act of 1972 (16 U.S.C. Section 1361 et seq.): This act expresses the intent of congress that marine mammals be protected and encouraged to develop in order to maintain the health and stability of the marine ecosystem. The Act imposes a perpetual moratorium on the harassment, hunting, capturing, or killing of marine mammals and on the importation of marine mammals and marine mammal products without a permit from either the Secretary of Commerce, depending upon the species of marine mammal involved (33 CFR 320.3 [k]). The proposed SEADOG project may impact a variety of marine mammals transiting the open ocean waters. The Corps will consult with NOAA Fisheries regarding impacts to marine mammals with this project.

Clean Water Act of 1972 (CWA):

a. Water Quality: Under Section 401 of the Clean Water Act (33 U.S.C. Section 1341), an applicant for a Corps permit must first obtain a State water quality certification before a Corps permit may be issued. The applicant is notified by this Public Notice that, unless he provides the Corps with evidence of a valid request for State water quality certification to the California Regional Water Quality Board within 30 days of the date of this Public

Notice, the Corps may consider this application withdrawn. No Corps permit will be granted until the applicant obtains the required water quality certification. The Corps may assume that water quality certification has been obtained if the State fails or refuses to act on a valid request for certification within 60 days after the receipt of a valid request, unless the District Engineer determines a shorter or longer period is reasonable for the State to act.

Those parties concerned with any water quality issues that may be associated with this project should write to the Executive Officer, California Regional Water Quality Control Board, North Coast Region, 5550 Skylane Boulevard, Suite A, Santa Rosa, California 95403, by the close of the comment period of this Public Notice.

b. Alternatives: Evaluation of this proposed activity's impact includes application of the guidelines promulgated by the Administrator of the Environmental Protection Agency under Section 404(b)(1) of the Clean Water Act (33 U.S.C. Section 1344(b)). An evaluation has been made by this office under the guidelines and it was determined that the proposed project is water dependent.

Coastal Zone Management Act of 1972 (CZMA): Section 307 of the Coastal Zone Management Act requires the applicant to certify that the proposed project will comply with the State's Coastal Zone Management Program, if applicable. No Corps permit will be issued until the State has concurred with the applicant's certification. Coastal development issues should be directed to the California Coastal Commission, North Coast District Office,

710 E Street, Suite 200, Eureka, CA 95501.

National Historic Preservation Act of 1966 (NHPA): The San Francisco District, Corps archaeologist will be requested to conduct a literature search, cultural resource survey file search, and other investigations to determine if the SEADOG project would impact cultural or archeological resources at the vicinity of the project site, including the possibility of historic underwater ship and vessel wrecks on the ocean bottom. The District Archaeologist will determine, after completion of investigations, consultation with the State Historic Preservation Office (SHPO) and/or Tribal Historic Preservation Office (THPO) in accordance with Section 106 of the National Historic Preservation Act. The project site is one mile offshore from historic territory of the Wiyot Indian Tribe and the Tribe's Table Bluff Reservation.

4. PUBLIC INTEREST EVALUATION: The decision whether to issue a permit will be based on an evaluation of the probable impact, including cumulative impact, of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits that reasonably may be expected to accrue from the proposed activity must be balanced against its reasonably foreseeable detriments. All factors that may be relevant to the proposal will be considered, including its cumulative effects. Among those factors are: conservation, economics, aesthetics, general environmental concerns, wetlands, historical properties, fish and wildlife values, flood hazards,

floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people.

5. CONSIDERATION OF COMMENTS:

The Corps of Engineers is soliciting comments from the public, Federal, State and local agencies and officials, Indian Tribes, and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps to determine whether to issue, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest in the proposed activity.

6. SUBMISSION OF COMMENTS:

Interested parties may submit, in writing, any comments concerning this activity. Comments should include the applicant's name and the number and the date of this Public Notice, and should be forwarded so as to reach this office within the comment period specified on Page 1. Comments should be sent to Lieutenant Colonel Phillip T. Feir, District Engineer, U.S. Army Corps of Engineers, San Francisco District,

Regulatory Branch, 333 Market Street, San Francisco, California 94105-2197. It is the Corps' policy to forward any such comments that include objections to the applicant for resolution or rebuttal. Any person may also request, in writing, within the comment period of this Public Notice that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing. Additional details may be obtained by contacting the applicant whose name and address are indicated in the first paragraph of this Public Notice or by contacting David Ammerman of our Eureka Field Office at telephone 707-443-0855 or E-mail at this address:

David.A.Ammerman@spd.usace.army.mil.

Details on any changes of a minor nature which are made in the final permit action will be provided upon request.